## Cognitive testing in Shetland ponies (*Equus caballus*) using a computer based learning device

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Complex housing environments such as group housing with automatic feeding or the close contact to humans in sports make high demands on the learning ability of the horse. These learning processes include not only habituation, sensitization and simpler forms of operant conditioning, but also stimulus generalization and possibly some type of concept learning. Studies concerning cognitive abilities in the horse increased in the last decades, but for optimizing housing conditions and horse training, deeper insight into the learning behaviour of this species is necessary. In the present study we used the advantages of a computer based learning device to train 7 Shetland ponies to solve a matching to sample task. With this more complex type of a discrimination task, animals are trained to recognize two out of three presented stimuli as identical. In a first step animals learned to operate the learning device and in further learning steps to recognize and assign geometric symbols (dot, cross, square, and triangle) presented on a LCD screen that were 'equal'. Four of the 7 ponies could solve the given task by performing over 80% correct responses in two consecutive sessions ($p < 0.001$). In the subsequent transfer test with new symbols, we found that the ponies were able to transfer the learned rule. In further experiments it should be clarified whether the good learning performance of the ponies in the present study is indeed based on their capability to form an abstract concept of sameness. The present results indicate that ponies possibly posses higher cognitive abilities than so far known.

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